DOCUMENT RESUME

ED 304 412 SP 030 932

AUTHOR Flinders, Neil J.
TITLE Focusing on the Creative Function in Teacher Training: Connecting Subject Matter Content with Pedagogical Process.
PUB DATE 87
NOTE 16p.; In: Orteza y Miranda, Eveline, Ed. Philosophy of Education Proceedings, 1987. Calgary, University of Calgary. p36-49.
PUB TYPE Viewpoints (120) -- Reports - Descriptive (141) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Abstract Reasoning; *Cognitive Processes; *Convergent Thinking; *Creative Thinking; *Divergent Thinking; Higher Education; *Instructional Development; Preservice Teacher Education; Teacher Effectiveness
IDENTIFIERS *Thinking Skills

ABSTRACT

The basic premise of this paper is that effective teacher training programs need to assist students in reaching beyond competence in subject matter and instructional methodology to focus on developing the prospective teacher's capacity to recognize and utilize the cognitive processes underlying the respective categories of the curriculum. A description of the various definition of creative thinking is followed by a discussion on the thinking skills that need to be applied to the basic curriculum. The relationship of different kinds of creative thinking and four curriculum components is examined: (1) language and arts--subjective evaluation; (2) mathematics--deductive reasoning; (3) science--inductive thinking skills; and (4) social studies--objective evaluation. It is suggested that teacher training should focus on confirming the acquisition and use of these cognitive skills. (JD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED304412

FOCUSING ON THE CREATIVE FUNCTION IN TEACHER TRAINING: CONNECTING SUBJECT MATTER CONTENT WITH PEDAGOGICAL PROCESS

Neil J. Flinders

Brigham Young University

PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

N J. FLINDERS

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC).

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

SP030932

BEST COPY AVAILABLE

FOCUSING ON THE CREATIVE FUNCTION IN TEACHER TRAINING: CONNECTING SUBJECT MATTER CONTENT WITH PEDAGOGICAL PROCESS

Neil J. Flinders
Brigham Young University

Part I

Basic Premise

The basic premise of this paper is that effective teacher training programs need to assist students in reaching beyond competence in subject matter (content) and pedagogical process (methodology) to:

A. Focus on developing the prospective teacher's capacity to recognize and utilize the process underlying the respective categories of the curriculum, viz.(1)
   1. Language/Arts: subjective evaluation related to language and the expressive arts.
   2. Mathematics: deductive thinking skills.
   3. Science: inductive thinking skills.
   4. Social Studies: objective evaluation related to social norms and characteristics.

B. Exercise the capacity of prospective teachers to transform knowledge (of content) into communicable pedagogical forms -- seeking effective personal answers to such questions as:(2)
   1. Where do teacher explanations originate?
   2. How do teachers decide what to teach and how to represent it?
   3. How do teachers question students about what they teach?
   4. How does the successful college student transform his or her expertise in the subject matter into a form that an elementary or high school student can comprehend?

Assumption

The assumption of this paper is that creativity, as it was traditionally defined, is the human capacity that makes this bridging between subject matter content and pedagogical methodology possible. It is the creative capacity that constitutes the third prerequisite to successful instruction. Our failure to address this attribute directly and effectively in teacher training programs impedes our efforts to develop more superior teachers. It is not the only barrier, but it is a significant one.

Choosing Between Competing Definitions of Creativity

If the foregoing assumption is correct, then the operational definition of creativity becomes very significant. Teacher trainers can hardly be expected to succeed if they cannot understand what it is they are supposed to be communicating to prospective teachers. Lee S. Shulman and his colleagues at Stanford have acknowledged this problem by pointing to the fact that a century ago teacher evaluation was

based on content proficiency exams while today teacher evaluation is based on the assessment of pedagogical skills. Shulman argues that what is lacking is a research base that explicates how teachers connect content to method.(3) This phenomenon appears to be the mystery in teacher training. I contend that creativity bridges this gap. It follows that if a prospective teacher's ability to bridge this gap is to be consciously improved by intentional experiences in teacher training programs, we need to refocus our perception of creativity away from the modern mystical view toward an older more traditional view.

A Choice Between Competing Definitions

There is substantial evidence that modern education and other segments of the society stifle individual development by communicating a narrow, restricted and mystical view of creativity. By mystical I mean obscure, baffling, mysterious, inexplicable and incomprehensible. In spite of significant exceptions by some educators, much of the literature and far too many of our young people conceptualize creativity as a trait limited to a few special, gifted, and talented individuals. I do not believe this is true. We seem to have rejected an older, more broadly defined view of creativity and replaced it with a narrow part of that older definition -- the mystical part. The result is less clarity and greater confusion. Researchers announced a decade ago that none of the theoretical accounts of creativity appeared to explain adequately its nature or provide for its measurement.(4) Our understanding has increased little since then.

The Ancient Meaning of "Create"

The ancient definition of "creating" is illustrated by the Hebrew word barah, as used in Genesis, Chapter One, Verse One: "In the beginning God created [barah] the heavens and the earth" -- this is commonly interpreted "He organized existing elements for some purpose."(5) Before the 20th century, creating was generally perceived as making; it was ordinary, natural, common, widely practiced, expected, and easily understood. "Creating" in this sense was expected of everyone. In those prespecialization eras, if one did not develop a fairly wide repertoire of creative responses, life quickly became less enjoyable and much more insecure. A loaf of bread, a basket, a tool, a shoe, whatever, was very much an individual creation. These skills were widely dispersed and carefully perpetuated.

Man was considered the offspring of God -- created in His image and likeness. He was to become like his Father in heaven.(6) God created by organizing things out of existing elements for some purpose, and so should man. Creativity was an inherent aspect of Being. The limits may have seemed boundless, but they were not restricted to the mystical. Jesus, the great Teacher of Israel, voiced this philosophy in His statement: "The Son can do nothing of Himself, but what He seeth the Father do."(7) Following some pattern toward a predetermined end was acceptable; it was not viewed as noncreative behavior.

This ancient notion of creativity, viewed from man's perspective, did have a mystical dimension. Man's ways were not God's ways. He did not understand all that God understood. Abraham, Jacob, and Moses marvelled at the power and wisdom of God. They did not always understand His mighty works; such were a mystery unless God provided explanations. But in their own human stewardship these patriarchs were very comfortable learning to become like God. Creativity for the ancients was a continuum. Creating consisted of organizing existing elements for some purpose: planting and harvesting, building and preserving, singing and dancing, adoring and reverencing. Only that which God gave to them without explanation, which they could not comprehend, was mystical. Creativity enveloped more than mystique. (See Figure 1)

Creativity Continuum

Figure 1

A New Definition Of Creativity

A modern perception of creativity has recently come to dominate both professional education and the arts. The new definition equates "creativity" with the development of new, novel, strange, difference, spontaneous, unusual or even bizarre products and actions. As J.C. Gowan et al. observed in 1967,

> creativity is a word which has recently been taken over by science from religion (and) it is almost impossible to discover it in a dictionary or encyclopedia more than a decade old. It is a new concept, recently attributed to the personality of man, and still fraught with some mythical connotations.(8)

This new definition of creativity tends to be elitist and mystical in nature. Educators should avoid perpetuating this narrow view of creativity. It is restrictive, often debilitating to the individual, and may add confusion and inefficient complexity to the educational enterprise.

Limitations of the New Definition

I became concerned about the definition of creativity several years ago while teaching courses on the subject to prospective teachers. Frequently, I began the first class period by asking students to suggest words they considered to be descriptors or indicators of creativity. Consistently, the reported list was dominated by terms such as new, unusual, unique, strange, different, and novel. After reaching a tentative agreement on the definition of

creativity, I would ask the students to indicate by raised hand, how many saw themselves as creative individuals. The response was consistent: only a few (usually 10 to 20 percent) of the twenty-five to thirty-five students would respond in the affirmative. Intimidation was high, confidence low, and self-esteem questionable. Confusion was evident.

This response pattern enticed me to reexamine the literature related to creativity, and I found the exploration fascinating. Researchers did not agree on the theoretical approaches to comprehending creativity nor did these theories explain adequately its nature or provide for its measurement.(9) Clearly, confusion was alive and healthy in this field. The more carefully I examined the record, the more apparent the confusion became.(10) I found abundant clues to why students perceived creativity as a product rooted in some mystical "twilight zone." Titles like C.A. Morizot's Just This Side of Madness and D.W. Fritz's Perspectives on Creativity and the Unconscious clearly convey a message that creativity is not to be found in the ordinary, natural, common, usual, widely practiced, or easily understood. Rather, it is portrayed as some type of mystical power or force that lies beyond the immediate management of the ordinary individual. Chiselin expressed this view in his declaration that creativity "is not to be found by scrutiny of the conscious scene, because it is never there....For only on the fringes of consciousness and in the deeper backgrounds into which they fade away is freedom attainable."(11)

D.N. Perkins, in a recently published study, openly acknowledges that creativity is commonly perceived as a mystery.(12) Refreshingly, his overall message in this provocative report veers somewhat from the dominant definitions in creativity literature. In his view creating should be viewed as the application of "commonplace resources of the mind."(13) The potential for creativity is not rare or entirely mystical.

But Perkins straddles the fence when he tries to distinguish between the verb "to create" and the adjective "creative." He joins many others in maintaining that the verb "to create" is too general and broad in its application to be useful in defining "creativity."(14) He argues that it is necessary to use the more restrictive adjective, "creative" to denote creativity. The distinction is important only because the operational definitions he associates with the verb and the adjective are so different.

This was not the case anciently. Since World War II, entire libraries of ancient documents have been discovered in Syria, Palestine and Egypt. The content of this vast reservoir of writings makes it clear that the ancients perceived creativity quite differently than either medieval or modern man have.(15)

When early Christian apologists labored to reconcile the ancient Hebrew world view with a form of Greek (Platonic) philosophy a doctrinal conflict arose that added to the confusion. There arose in the fourth century a squabble in theology that was resolved by

concluding that God created things ex nihilo, out of nothing.(16) The shift from a sacred to a secular society occurred in America between 1880 and 1920. The shift seems to have set the stage for and contributed to conflict and confusion in contemporary educational thought on creativity. Contemporary literature is full of assertions such as "In the Old Testament man was not creative,"(17) or "the faithful formalist has no chance of creating anything."(18) Such arrogant statements can be understood only as one realizes how far the pendulum has swung toward the mystic definition.

In a way it seems ironic that a secular world would adopt a mystical foundation for one of its most admired phenomenon. Yet the evidence abounds. Some writers freely acknowledge that the "popular stereotype sometimes confuses the creative genius with the emotionally disturbed."(19) Or, as the editors of the Colorado Symposium of 1962 argued, "the study of creativity need not limit itself to the eminent, the extraordinary; [nevertheless] if we include 'everyday creativity' in our study, we may be in danger of making our conception of it meaningless."(20)

This type of thinking only perpetuates the mystical stereotype. It seems to prevail in spite of counterthrusts, such as J.P. Guilford's position that creativity can be understood and explained, and similar research findings like those of Calvin Taylor and Paul Torrance. The entanglement of creative activity with the mystical has been solidly retained in many modern definitions. Focus on the exceptional has been so alluring that it has obscured the universal distribution of the ability to create and the diverse expression of creativity in the individual.

Educators, it seems are better served by the ancient definition which holds that creativity is simply the act of organizing existing elements for some purpose. This older definition includes the ability to originate the new and different and emphasizes the value of developing skills and products that promote the ordinary, natural, common, widely practiced, expected, and easily understood. It is also a perspective much more friendly to the kind of research we are capable of conducting.

It is a view that can be an extension of the basic curriculum. The structure and function of the general curriculum constitute a vital and exciting approach to fostering creativity as a human resource.

Part II
Creativity as an Extension of the Basic Curriculum

Rather than focusing on various groups or special programs to promote creative responses, it seems that educators should concentrate on providing individuals in all settings the opportunity to organize (utilize) existing elements and clearly perceive the purpose for which a student engages in this activity. Students can quickly mature in this kind of creativity. It is a very concrete process accessible to all from the most handicapped to the most gifted. It has a variety of

forms and fits into the teaching/learning process at all levels. Such an approach allows for the fullest range of new, useful, or exciting creations that improve civilization. It enhances such actions and it avoids the denial of any individual's inalienable capacity to be creative. Perhaps most important to the educator, it is simply an articulation, an affirmation, of the essence of traditional curriculum.

Creativity as an Expression of the Curriculum

For more than a century American educators have been attempting to refine the objectives of public school curriculum. These purposes can be reduced to four fundamental components, most clearly evident in their practice in the elementary classroom: (1) language and the expressive arts, (2) mathematics, (3) science, and (4) social studies. Each of these components represents a specific type of thinking, a set of glasses through which each person perceives different aspects of the world. The assumption is that all four sets of glasses are necessary if a person is to maximize his or her personal understanding, effectiveness, and satisfaction.(21)

The distinction between these respective components can be recognized in the performance pattern of most elementary school teachers. For example, it is common practice to divide the school day into these four areas. A teacher tells her students, "Put away your reading books and get out your math books," or announces, "Now we are going to do science." At secondary levels, although the four segments of the curriculum pie are subdivided into smaller slices, the objective remains the same: prepare students to see the world around them by equipping them with these four special intellectual instruments. If any of the four sets of glasses are missing or defective, then students will be disadvantaged. Students will be unable to see and understand what otherwise might have sustained and improved their lives.

Each of the four tools has its own unique characteristics, its own conceptual emphasis, purpose, evaluative criterion and declaration.

The Value of Language and the Expressive Arts

The mechanism underlying Language and the Arts, for example, equips the individual to make <u>personal, interpretive judgments</u>. Properly fitted glasses in this area help individuals evaluate what is satisfying and dissatisfying, beautiful and ugly, according to aesthetic guidelines. It is a subjective approach to understanding and communicating feelings. Language and the expressive arts are means to this end. Prose, poetry, art, dance and music are specific examples of subject matter.

The Value of Mathematics

Mathematics trains a student to use the power of <u>logical deductive thought</u>. This instrument enables the person to validate and

invalidate based on principles of internal consistency. With these glasses an individual can quantify and measure. Students learn to control and utilize matter by addressing it in terms of symbolic numbers and conceptual principles. They learn that 3 - 2 = 1, and they affirm the internal consistency of their knowledge by demonstrating that 2 + 1 = 3. Confidence is assured by the balance of the equation and the order that sustains the principles. The capacity to dissect the world with the language of numbers allows man to perceive order in nature and to make greater use of this natural order.

The Value of Science

Study of science is a way to develop the student's capacity to use empirical inductive thought. The elementary teacher who directs her students to plant a bean in a paper cup of soil and observe the consequences as sunlight and moisture are supplied is fitting these students with another set of glasses. She is teaching them how to confirm or disconfirm guesses about what might happen. She is equipping them with the methodology of prediction based on manifestations of natural law. She is providing them a tool by which they can access their physical environment by understanding both its discrete and complementary functions.

The Value of Social Studies

The hours spent discussing social studies is the educational optometrist's attempt to fit each student with a fourth set of glasses that will bring into focus another dimension of life. The ability to recognize and assess norms and values is the desired goal. Expertise in social science allows people to understand what is normal and not normal, and what different peoples consider desirable and not desirable. In its mature form this mode of thought is buttressed by the language of statistics which allows a student to communicate another form of prediction. Mr. Rogers' invitation to "Come on over to my neighborhood," a field trip to the fire station, a study of the Civil War, or a comparison of voting patterns in two different cultures are all examples of teaching students proficiency in normative/valuative thought.

The Four Objectives of Teaching

Fitting students with one or more of these four sets of glasses, or possibly the fifth set discussed below, is a helpful metaphor for teaching. These respective modes of learning each reveal a different dimension of life, just as the 35mm camera, X-ray machine, radar instruments, and sonar devices are each designed to help us capture different dimensions of existence. These four mechanisms constitute the basic frame of education.

Traditionally, elementary teachers are expected to have some expertise in all four areas. Their task is to help the student (1) find satisfaction through language and the expressive arts by combining skills and acquired aesthetic sensitivity, (2) use the

instrument of numbers to validate deductively the application of theorems that have internal consistency, (3) experience the inductive empirical search for confirmation based on predictability, and (4) discover normative action through observation and statistical prediction. Secondary teachers are usually specialists who spend their time working with only one or two sets of these glasses. When the teacher does not possess these instruments, or when his or her vision is impaired by lenses with flaws and defects, students are likely to suffer. Concepts such as core curriculum and general education are intended to prevent such difficulties, but they are not always successful.

Creativity and the Four Curriculum Components

The relationship among creativity and the four curriculum components becomes clear as one examines (1) the subjective evaluative nature of the mechanism that underlies language and the expressive arts, (2) the convergent nature of logical deductive thought in mathematics, (3) the divergent nature of empirical inductive thought in science, and (4) the objective evaluative nature of normative/valuative thought in social studies. When viewed from this perspective, the fundamental mechanisms (knowledge structures) underlying the regular school curriculum clearly are nothing more than the primary elements of creative thought. Organizing existing elements, symbolically or empirically, is the mainstay of proficiency in each of the four segments of the regular curriculum, just as it is an exercising of the very capacities which constitute the substance of creativity.(22) (see attached chart)

Possible Impact on Teacher Training

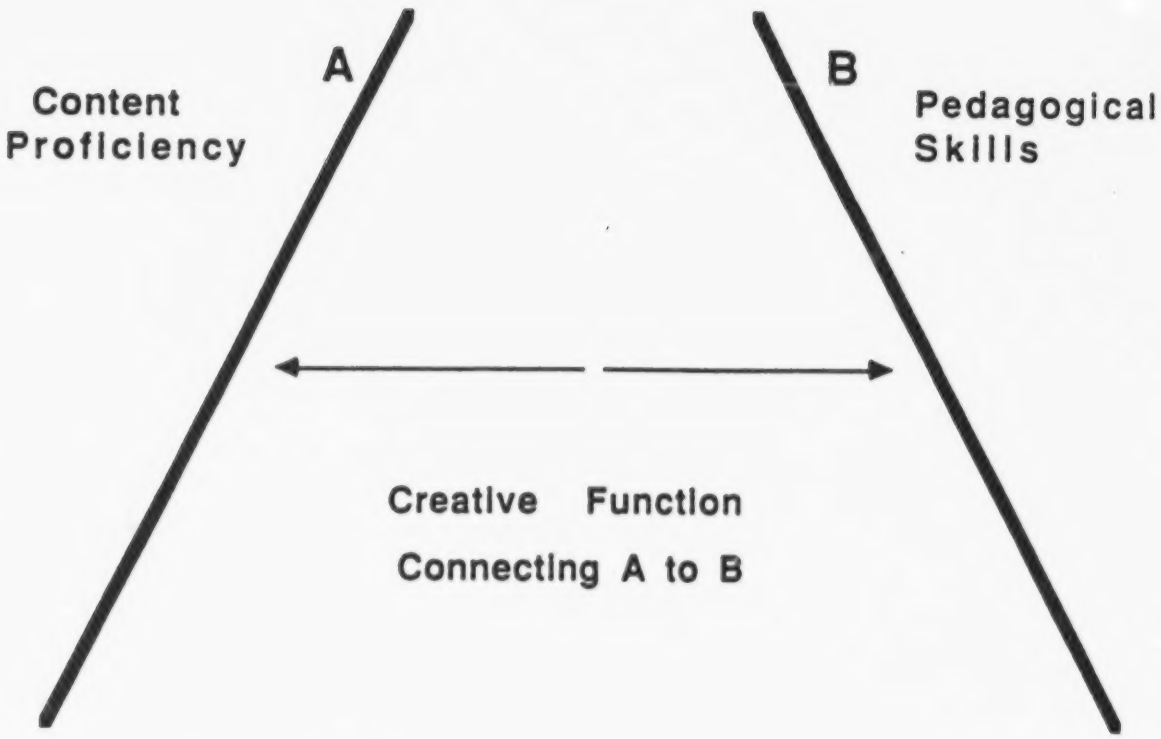
This paper suggests the training of prospective teachers could focus on confirming the acquisition and the use of one or more of the four sets of glasses, rather than on merely the completion of particular courses for certification. Educators would recognize that all students possess the fundamental capacities for creative action, and that creative activity expands as students mature in their mastery of the four mechanisms that underlie conventional curriculum. Research efforts would focus on the connecting of content to methodology as well as on the acquisition of subject matter proficiency and pedagogical skills.

The Missing Component -- A Note on Balance

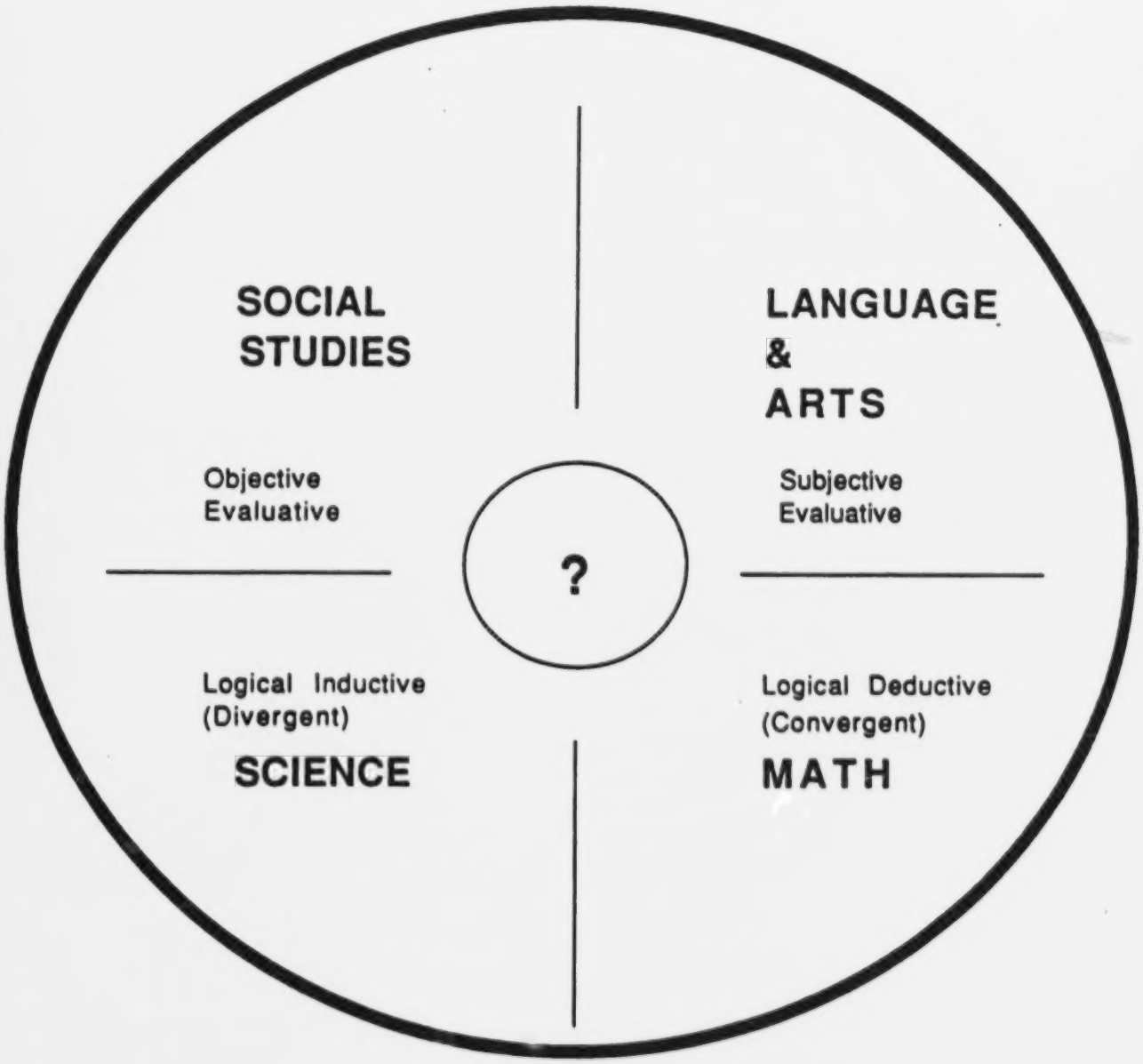
Historically, a fifth component was part of the educational curriculum of Western culture. This set of glasses equipped the students to see and understand the value of revealed standards of conduct and character. As useful and pertinent as the four components now used in American education are, many people feel the vacuum created by this missing set of glasses.(23) Contemporary curriculums in America are now largely devoid of any formal attempt to help students identify moral imperatives. As Irving Kristol and others have duly noted, textbooks no longer direct students in discerning

right from wrong. The academic intellect is in disarray -- consensus has essentially evaporated and the nation's moral vision is impaired.

Some observers feel this is a critical curricular deletion. We make serious attempts to help students determine what is beautiful or ugly, valid or invalid, confirmed or disconfirmed, conforming or nonconforming; but there is little or no provision for any instrument that teaches what is right or wrong in an imperative sense. Critics of this condition frequently suggest that the perpetuation of such education may result in the demise of democratic society. Perhaps this challenge looms as the most vital test of our creativity.


A
B
Content
Proficiency
Pedagogical
Skills
Creative Function
Connecting A to B

NJF/1987


SOCIAL STUDIES
LANGUAGE & ARTS
Objective Evaluative
Subjective Evaluative
?
Logical Inductive (Divergent)
SCIENCE
Logical Deductive (Convergent)
MATH

NJF/1987

(1) A report on the experiment at State University of New York (SUNY) to incorporate a type of "structures of knowledge" emphasis related to teacher training and the four components of the curriculum is found in William E. Doll "Preparing for the Post-Industrial Society: Oswego's New Direction in Teacher Education," a paper presented at the AACTE meeting in Detroit, Mich., Feb. 23, 1983.

(2) Lee S. Shulman, "Those Who Understand: Knowledge Growth in Teaching" Educational Researcher, (February 1986), pp. 4-14.

(3) Ibid.

(4) William E. Rowerton, Creativity: A Review of Theory and Practice (Wisconsin Research and Development Center: 1970), p. 15.

(5) It is recognized that an ongoing debate has existed between scholars who favor the early Greek philosophies that held creation to be the product of forming from existing matter and those who prefer the doctrine of creation ex nihilo -- making things out of nothing. However, even those who argue the necessity of the latter position because of certain Christian doctrines, such as the resurrection, acknowledge that anciently the common belief was that existing materials are required in order to create. For example, see Jonathon Goldstein "The Origins of the Doctrine of Creation Ex Nihilo" Journal of Jewish Studies, Vol. 35, No. 1, (Autumn 1984), who states "Believing Jews and Christians have long been convinced that their religion teaches that God created the world ex nihilo, from absolutely nothing. Yet medieval Jewish thinkers still held that the account of creation in Genesis could be interpreted to mean that God created from pre-existing formless matter, and ancient Jewish texts state that he did so." p. 127. In a response to Goldstein's article published in the same journal under the title "Creation Ex Nihilo Revisited: A Reply to Jonathon Goldstein, Spring, Vol. 37, No. 1, 1986, David Winston notes that "there is no evidence that the rabbis were especially attached to a doctrine of creation ex nihilo. Indeed there is prima facie evidence that such a doctrine was far from being commonly accepted by them." p. 91.

(6) Genesis 1:26-27, Matthew 5:48 (KJV).

(7) John 5:19.(KJV) cf. R.F. Biehler and J. Snowman, Psychology Applied to Teaching, 4th Ed. (Boston: Houghton Mifflin Co., 1982). This text exhorts teachers to recognize that creative"....activities should center on originality and creativity. Copying, assembling, prefabricated kits, filling in sections on paint-by-number pictures, and similar activities are less desirable." p. 99.

(8) J.C. Gowan, G.D. Demos, and E.P. Torrance, Creativity: Its Educational Implications (New York: John Wiley & Sons, 1967), p. 1.

(9) Rowerton, p. 15.

(10) Textbooks of educational psychology offer an insight into this confusion. See for example, David Ausubel, Educational Psychology: A Cognitive View, (New York: Holt, Rinehart & Winston, Inc., 1968). This text claims creativity is one of the most vague, ambiguous and confused terms in psychology and education. Steven V. Owen et al., Educational Psychology, 2nd Ed. (Boston: Little, Brown & Co., 1981). This text acknowledges that creativity remains as yet an elusive term and precise measurement is thus far impossible. Herber J. Klausmeir, Educational Psychology 5th Ed. (New York: Harper & Row, 1985). This text leaves the impression that a sound body of knowledge regarding creativity exists and it is basically a matter of becoming informed.

(11) Brewstin Chiselin, The Creative Process (New York: The New American Library, 1952), pp. 21-22.

(12) D.N. Perkins, The Mind's Best Work (Boston: Harvard University Press, 1981), p. 2.

(13) Perkins, p. 5.

(14) Perkins, p. 243. See also H.E. Gruber, G. Terrel, and M. Wertheim, Contemporary Approaches to Creative Thinking (New York: Antherton Press, 1962), p. x.

(15) The Nag-Hammadi, Ed. James M. Robinson, (New York: Harper & Row, 1977). Edgar Hennecke and Wilhelm Schneemelcher, New Testament Apocrypha, vols. 1 & 2 (Philadelphia: Westminster Press, 1965). James H. Charlesworth, Ed. The Old Testament Pseudepigrapha, 2 vols., (New York: Doubleday & Company, 1983 & 1985). Hugh Nibley "Apocryphal Writings" Tape transcript edited by F.A.R.M.S. Staff, given at a BYU Seminar held in Long Beach, CA, 1968.

(16) St. Augustine, Concerning the Nature of God, chapter XXVI.

(17) H.H. Anderson, Creativity and Its Cultivation, (New York: Harper & Row, 1959), p. 1.

(18) B. Chiselin, p. 19.

(19) J.C. Gowan, p. 2.

(20) H.E. Gruber et al., p. x.

(21) Numerous recent studies address this vacuum. For example, Robert N. Bellah, Habits of the Heart: Individualism and Commitment in American Life (Los Angeles: University of California Press, 1985); A. James Reichley, Religion in American Public Life (Washington D.C.: The Brookings Institution, 1985); Richard Vetterli and Gary Bryner, In Search of the Republic: Public Virtue and the Roots of American Government (Totowa, Illinois: Roman & Littlefield, 1987); Neil J. Flinders, "Public School Textbooks: Reflections of a Shift in the Philosophical Foundations of American Education" Proceedings of the Far Western Philosophy of Education Society, 1986. Paul C. Vitz, Censorship: Evidence of Bias in our Children's Textbooks (Ann Arbor, Michigan: Servan Books, 1986); Peter Dobkin Hall, The Organization of American Culture, 1700-1900: Private Institutions, Elites, and the Origins of American Nationality (New York: New York University Press, 1982).

(22) Project IMPLODE, Igniting Creative Potential (funded under Public Law 90-247, Elementary and Secondary Education Act of 1965. Grant No. 54-70-155-I ESEA Title III. Copyright 1971, Bella Vista Elementary School, 2131 East 7000 S., Salt Lake City, Utah. Based on the research of Calvin W. Taylor, J.P. Guilford, and E. Paul Torrance. p. 1.